U-006-305.19

2421

# CONDITIONAL APPROVAL O.U. 4 TREATABILITY STUDY W.P.

11-01-91

OEPA/DOE-F
1
LETTER

OhioEPA
State of Ohio Environmental Protection Agency

**Southwest District Office**
40 South Main Street
Dayton, Ohio 45402-2086
(513) 285-6357
**FAX** (513) 285-6249

U-006-707.31

2421

George V. Voinovich
Governor

November 1, 1991

RE: CONDITIONAL APPROVAL
O.U. 4 TREATABILITY
STUDY W.P.

Mr. Jack R. Craig
Project Manager
U.S. DOE FEMP
P.O. Box 398705
Cincinnati, Ohio 45239

Dear Mr. Craig:

The purpose of this letter is to conditionally approve the Treatability Study Work Plan for O.U. 4. The conditions for approval are that DOE address, to Ohio EPA's satisfaction, the comments on the attached pages. In addition, this conditional approval does not cover Appendix D since it is Ohio EPA policy not to approve health and safety plans. If you have any questions about these comments please contact me.

Sincerely,

Graham E. Mitchell
Project Manager

GEM/bjb

cc: Kathy Davidson, OEPA
Jim Saric, U.S. EPA
Lisa August, Geotrans
Ed Schuessler, PRC
Robert Owen, ODH

1

OHIO EPA COMMENTS ON
DRAFT TREATABILITY STUDY WORK PLAN FOR OPERABLE UNIT 4
OCTOBER 1991

General Comment

1. DOE should consider incorporating some mechanism for quantifying the radon emission which occur during the treatment options. This information would be directly related to the evaluation of short-term effectiveness for the remedial alternatives. See Ohio EPA General Comment #4 (8/22/91).

2. Durability tests should be run during the advanced phase testing for the stabilization of untreated material. The following is the justification for these tests:
a) Through failure mechanisms such as: desiccation cracks, slope instability, settlement, piping, penetration, erosion, cold climate, earthquakes, and construction errors, water can permeate through the facility. Therefore the waste can become saturated, causing the stabilized waste to erode and possibly contaminate the surrounding area. Therefore to determine what waste matrix is the most durable (erosion resistant), a wetting and drying test is needed.
b) This radioactive waste has a life expectancy over 1000 years. There is no data available on the structural longevity of the low level radioactive waste facility. Since this remediation is to be a permanent solution, a durability test would provide data to help choose the most durable solidified waste matrix.
c) Radioactive waste will emit heat radiation as it decays. Proper venting of the stabilized waste will allow the waste to be cooled off, therefore a change in temperature will occur. With this change in temperature an additional source for degradation is encountered. A freezing and thawing test would provide data on the most durable form.
d) From the technical document: Stabilization/Solidification of CERCLA and RCRA Wastes; Physical Tests, Chemical Testing Procedures, Technology Screening, and Field Activities (EPA/625/6-89/02). In Section 4, Physical Tests to Characterize Waste Before and After Stabilization/ Solidification, recommends the use of five physical tests: index property, density, permeability, strength, and **durability** tests. Durability tests are the following 1) Freezing and Thawing Test of Solid Waste (ASTM D4842); 2) Wetting and Drying Tests of Solid Wastes (ASTM D4843).

Specific Comments

1. Section 1, pg. 4, line 19: This sentence contains a typographical error. Change "conjuncture" to conjecture.

2. Section 1.2, pg. 5, Figure 1-1, 1-2: In addition to MCLs as Remedial Action Objectives, non-zero MCLGs should be included. The NCP's support of MCLGs has been previously emphasized by Ohio EPA in our comments on a number of documents.

3. Section 1.2, pg. 6, Figure 1-1, 6: Incorporate non-zero MCLGs as ARARS. See previous comment.

4. Section 3, pg. 4, Table 3-2: The table's title indicates that the table lists ARARs and TBCs. These items were omitted from the table. Additionally a definition of footnote "e" was left off the table. Please correct the table.

5. Section 3, pg. 6, Table 3-3: Footnote "a" lists a document that is not in the reference list. Add the 7/18/91 memo, "Drinking water MCLs and HAs" from J. Dee to the reference list. The footnote also discusses PCBs but PCBs are not included in the table.

6. Section 4.1.1.1, pg. 5, lines 6-9: All tests should be referenced either in the Appendix or as a standard method.

7. Section 4.1.3, pg. 7, line 13: All tests to be performed during the Optional Phase should be submitted to the EPAs for review and approval.

8. Section 4.2.7, pg. 23, line 15: TCLP should be conducted on the vitrified precipitate selected as the leading mixture (See Figure 1-4). TCLP analysis of the vitrified material will allow for direct comparison to the other selected waste forms, all of which will be subject to TCLP during the final screening/selection. It will be important during the detailed analysis of alternatives to have directly comparable analyses on all the waste forms in order to implement the 9 selection criteria. See Ohio EPA Specific Comment #28 (8/22/91).

9. Section 4.2.7: Radiological and HSL analysis of the "liquid" to be discharged to the "wastewater collection system" (See Figure 1-4) should be included in this section. The analysis of this waste stream is information which is needed to understand the complete mechanism of this alternative and to perform a comparison of the various remedial alternatives.

10. Appendix C, 5-Day Static Leach Test:
a) This test does not represent what conditions would be expected for waste placed in a disposal facility. Considering this waste disposal facility is to have an extensive life, the waste could go through many saturated cycles. A representative wetting cycle should be longer than 5 days.
b) The use of this test as a screening test is acceptable, if the Measurement of the Leachability of Solidified Low-Level Radioactive Waste by Short-Term Procedure (ANSI/ANS-16.1-1986) is used in the advanced phases.